

## **ABSTRACT**

The invention relates to aequorin and obelin mutants whose emission is shifted with respect to wild type. The shift in emission is accomplished using a combination of mutations of amino acids within aequorin or obelin that affect bioluminescence; use of different types of chromophores, i.e., coelenterazines with variable emission characteristics; and modifications of the photoprotein with fluorophores that will allow for emission of light at longer wavelengths as a result of energy transfer. Additionally, an assay employing aequorin mutants to test for HIV-1 protease inhibitors is disclosed.